

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Akinori MINAMI, et al.

Appln. No.: Not Yet Assigned

Confirmation No.: Not Yet Assigned

Group Art Unit: Not Yet Assigned

Filed: December 06, 2001

Examiner: Not Yet Assigned

For: POWDERS-AFFIXED NONWOVEN FABRIC, PROCESS FOR MANUFACTURING SAME,
AND SHEET MATERIAL CONTAINING SAME

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Page 3, please delete the second full paragraph and replace it with the following new paragraph:

In accordance with the present invention, there is provided a powders-affixed nonwoven fabric prepared from a fiber web comprising fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less in a dispersed state in the powders-containing fiber web, the powders-containing fiber web being formed by a method other than a wet-laid method.

Page 4, please delete the first full paragraph and replace it with the following new paragraph:

Accordingly, the present invention also relates to a process for manufacturing a powders-affixed nonwoven fabric comprising the steps of:

ejecting aggregates of fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or a group of the aggregates, and/or mechanically dividable fiber capable of generating fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or aggregates of the mechanically dividable fibers, together with powder materials, from a nozzle into a gas by an action of a

compressed gas, to thereby divide the aggregates of the fine short fibers or the group thereof into the fine short fibers, and/or divide the mechanically dividable fibers or the aggregates thereof into the fine short fibers, and disperse the resulting fine short fibers and the powder materials;
collecting the dispersed fine short fibers and the powder materials to form a powders-containing fiber web; and affixing the powder materials, while forming a nonwoven fabric from the powders-containing fiber web to obtain the powders-affixed nonwoven fabric.

Please delete the paragraph bridging pages 4 and 5 and replace it with the following new paragraph:

In accordance with the present invention, there is also provided a sheet material comprising at least one layer of a powders-affixed nonwoven fabric prepared from a fiber web comprising powder materials and fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less in a dispersed state in the fiber web, the powders-containing fiber web being formed by a method other than a wet-laid method.

Page 5, please delete the second full paragraph and replace it with the following new paragraph:

In accordance with the present invention, there is also provided a process for manufacturing a sheet material comprising the steps of:
Ejecting aggregates of fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or a group of the aggregates, and/or mechanically dividable fibers capable of generating fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or aggregates of the mechanically dividable fibers, together with powder materials, from a nozzle into a gas by an action of a compressed gas, to thereby divide the aggregates of the fine short fibers or the group thereof into the fine short fibers, and/or divide the mechanically dividable fibers or the aggregates thereof into the fine short fibers, and disperse the resulting fine short fibers and the powder materials;
collecting the dispersed fine short fibers and the powder materials to form a powder-containing fiber web; and affixing the powder materials, while forming a nonwoven fabric from the powders-containing fiber web, and at the same time bonding a layer free of the powder materials, to obtain the sheet material containing a powders-affixed nonwoven fabric.

IN THE CLAIMS:

Please enter the following amended claims:

1. (amended) A powders-affixed nonwoven fabric prepared from a fiber web comprising powder materials and fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less in

a dispersed state in said powders-containing fiber web, said powders-containing fiber web being formed by a method other than a wet-laid method.

7. (amended) A process for manufacturing a powders-affixed nonwoven fabric comprising the steps of: ejecting aggregates of fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or a group of the aggregates, and/or mechanically dividable fibers capable of generating fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or aggregates of the mechanically dividable fibers, together with powder materials, from a nozzle into a gas by an action of a compressed gas, to thereby divide the aggregates of the fine short fibers or the group thereof into the fine short fibers, and/or divide the mechanically dividable fibers or the aggregates thereof into the fine short fibers, and disperse the resulting fine short fibers and the powder materials; collecting the dispersed fine short fibers and the powder materials to form a powders-containing fiber web; and affixing the powder materials, while forming a nonwoven fabric from the powders-containing fiber web to obtain the powders-affixed nonwoven fabric.

12. (amended) A sheet material comprising at least one layer of a powders-affixed nonwoven fabric prepared from a fiber web comprising powder materials and fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less in a dispersed state in said powders-containing fiber web, said powders-containing fiber web being formed by a method other than a wet-laid method.

14. (amended) A process for manufacturing a sheet material comprising the steps of:

ejecting aggregates of fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or a group of the aggregates, and/or mechanically dividable fibers capable of generating fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or aggregates of the mechanically dividable fibers, together with powder materials, from a nozzle into a gas by an action of a compressed gas, to thereby divide the aggregates of the fine short fibers or the group thereof into the fine short fibers, and/or divide the mechanically dividable fibers or the aggregates thereof into the fine short fibers, and disperse the resulting fine short fibers and the powder materials;

collecting the dispersed fine short fibers and the powder materials to form a powders-containing fiber web; and affixing the powder materials, while forming a nonwoven fabric from the powders-

Preliminary Amendment
Attorney Docket No. Q67578

containing, and at the same time bonding a layer free of the powder materials, to obtain the sheet material containing a powders-affixed nonwoven fabric.

IN THE ABSTRACT:

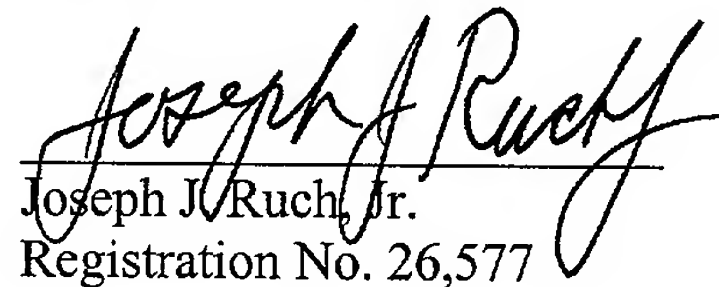
Please delete the present Abstract of the Disclosure and replace it with the following new Abstract of the Disclosure.

Disclosed is a powders-affixed nonwoven fabric prepared from a fiber web comprising powder materials and fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less in a dispersed state in the powders-containing fiber web, the powders-containing fiber web being formed by a method other than a wet-laid method. Further, a process for manufacturing the powders-affixed nonwoven fabric, and a sheet material comprising the powders-affixed nonwoven fabric are also disclosed.

REMARKS

Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,


Joseph J. Ruch, Jr.
Registration No. 26,577

SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
Telephone: (202) 293-7060
Facsimile: (202) 293-7860
JJR/amt
Date: December 6, 2001

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 3, second full paragraph:

In accordance with the present invention, there is provided a powders-affixed nonwoven fabric prepared from a fiber web comprising fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less in a dispersed state in the powders-containing fiber web, ~~the powders-containing and powder materials affixed to the fiber web~~ being formed by a method other than a wet-laid method.

Page 4, first full paragraph:

Accordingly, the present invention also relates to a process for manufacturing a powders-affixed nonwoven fabric comprising the steps of:
ejecting aggregates of fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or a group of the aggregates, and/or mechanically dividable fiber capable of generating fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or aggregates of the mechanically dividable fibers, together with powder materials, from a nozzle into a gas by an action of a compressed gas, to thereby divide the aggregates of the fine short fibers or the group thereof into the fine short fibers, and/or divide the mechanically dividable fibers or the aggregates thereof into the fine short fibers, and disperse the resulting fine short fibers and the powder materials;
collecting the dispersed fine short fibers and the powder materials to form a powders-containing fiber web; and ~~bonding the powders-containing fiber web, and affixing the powder materials thereto to obtain the powders-affixed nonwoven fabric~~ affixing the powder materials, while forming a nonwoven fabric from the powders-containing fiber web to obtain the powders-affixed nonwoven fabric.

The paragraph bridging pages 4 and 5:

In accordance with the present invention, there is also provided a sheet material comprising at least one layer of a powders-affixed nonwoven fabric prepared from a fiber web comprising powder materials and fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less in a dispersed state in the fiber web, ~~and powder materials affixed to the powders-containing~~ the fiber web being formed by a method other than a wet-laid method.

Page 5, second full paragraph:

In accordance with the present invention, there is also provided a process for manufacturing a sheet material comprising the steps of:

Ejecting aggregates of fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or a group of the aggregates, and/or mechanically dividable fibers capable of generating fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or aggregates of the mechanically dividable fibers, together with powder materials, from a nozzle into a gas by an action of a compressed gas, to thereby divide the aggregates of the fine short fibers or the group thereof into the fine short fibers, and/or divide the mechanically dividable fibers or the aggregates thereof into the fine short fibers, and disperse the resulting fine short fibers and the powder materials;

collecting the dispersed fine short fibers and the powder materials to form a powder-containing fiber web;

~~and bonding the powder-containing fiber web, affixing the powder materials thereto, and at the same time bonding a layer free of the powder materials, to obtain the sheet material containing a powder-affixed nonwoven fabric~~
affixing the powder materials, while forming a nonwoven fabric from the powder-containing fiber web, and at the same time bonding a layer free of the powder materials, to obtain the sheet material containing a powder-affixed nonwoven fabric.

IN THE CLAIMS:

The claims are amended as follows:

1. (amended) A powder-affixed nonwoven fabric prepared from a fiber web comprising powder materials and fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less in a dispersed state in said powder-containing fiber web, ~~and powder materials affixed to said said powder-containing fiber web~~ being formed by a method other than a wet-laid method.

7. (amended) A process for manufacturing a powder-affixed nonwoven fabric comprising the steps of: ejecting aggregates of fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or a group of the aggregates, and/or mechanically dividable fibers capable of generating fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or aggregates of the mechanically dividable fibers, together with powder materials, from a nozzle into a gas by an action of a compressed gas, to thereby divide the aggregates of the fine short fibers or the group thereof into the fine short fibers, and/or divide the mechanically dividable fibers or the aggregates thereof into the fine short fibers, and disperse the resulting fine short fibers and the powder materials;

collecting the dispersed fine short fibers and the powder materials to form a powders-containing fiber web; and ~~bonding the powders-containing fiber web~~, and affixing the powder materials, while forming a nonwoven fabric from the powders-containing fiber web thereto to obtain the powders-affixed nonwoven fabric.

12. (amended) A sheet material comprising at least one layer of a powders-affixed nonwoven fabric prepared from a fiber web comprising powder materials and fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less in a dispersed state in said powders-containing fiber web, said powders-containing materials affixed to said fiber web being formed by a method other than a wet-laid method.

14. (amended) A process for manufacturing a sheet material comprising the steps of:

ejecting aggregates of fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or a group of the aggregates, and/or mechanically dividable fibers capable of generating fine short fibers having a fiber diameter of 4 μm or less and a fiber length of 3 mm or less, or aggregates of the mechanically dividable fibers, together with powder materials, from a nozzle into a gas by an action of a compressed gas, to thereby divide the aggregates of the fine short fibers or the group thereof into the fine short fibers, and/or divide the mechanically dividable fibers or the aggregates thereof into the fine short fibers, and disperse the resulting fine short fibers and the powder materials;

collecting the dispersed fine short fibers and the powder materials to form a powders-containing fiber web; and ~~bonding the powders-containing fiber web~~, affixing the powder materials thereto, while forming a nonwoven fabric from the powders-containing, and at the same time bonding a layer free of the powder materials, to obtain the sheet material containing a powders-affixed nonwoven fabric.